

SPECTRACOM CORPORATION

ROCHESTER, NEW YORK • USA

OPTION 34 SMART START™

INSTRUCTION MANUAL

MP MASTER



MA26555



Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_10189

**CONTROLLED
DOCUMENT**

**TSM
COPY**

20

OPTION 34 SMART START™

INSTRUCTION MANUAL

SHOP COPY

**SPECTRACOM CORPORATION
101 Despatch Drive
East Rochester, New York 14445
(716) 381-4827**

**CONTROLLED
DOCUMENT**

**Manual Revision 1.1
May 6, 1987**

TABLE OF CONTENTS

SECTION		PAGE
1.0	Introduction.	1
2.0	Installation Instructions	1
3.0	Battery Considerations.	5
4.0	Description	5
5.0	Replaceable Parts List.	6
FIGURE		
2-1	Assembly Drawing - Mainframe.	3
2-2	A6U5 Resistor Add	4

1.0 INTRODUCTION

Option 34, Smart Start™, for the Model 8164 Ageless™ Oscillator provides a battery back-up power supply for the memory and oscillator of the Model 8164. Smart Start™ enables the oscillator to return to its previous setting and be "on" frequency after a power failure.

With Smart Start™, the oscillator setting is maintained in memory during a power loss. When power is applied, the oscillator immediately resumes the proper frequency setting. As the oscillator ages, the processor will make small adjustments to the voltage controlled oscillator and keep it "on" frequency, thus providing continuous traceability to the National Bureau of Standards.

2.0 INSTALLATION INSTRUCTIONS

These instructions are for installing Option 34 in the field. If your unit has had Option 34 installed by the factory, disregard this section. When installing Option 34, be sure to **HANDLE THE BATTERY PACK CAREFULLY**. Be careful not to allow any terminals to contact each other and become shorted. If shorts occur, burns can result, and the batteries will be damaged. Perform the following installation steps.

The items listed below are shipped with each Option 34 field installation kit. Check to be sure all items have been received.

Quantity	Description
1	Hardware Pack
1	Battery Pack Assembly
1	Integrated Circuit Labeled A6U5
1	Integrated Circuit Labeled A6U6
1	5.1 K ohm Resistor

1. Disconnect the Model 8164 from the power line.
2. Place the rear panel battery switch to the "EXT" position.
3. Open the top cover of the Model 8164, remove the vinyl-covered side panel from the left side of the unit.
4. Using the (4) four 6-32 screws provided, mount the battery pack in the empty space at the rear of the Model 8164, against the left side casting. Position the battery pack so the yellow marker dot is facing up. Review Figure 2-1. Secure the battery pack using the flathead screw in the countersunk hole in the casting (upper rear hole), and the panhead screws and lockwashers from the other three clearance holes provided in the casting.
5. Connect the battery pack plug to the harness connector in the Model 8164.

6. For units with serial numbers less than 8164-0603 perform the following steps, otherwise go to step 7.
 - A. Remove the A6 board from the unit. Printed circuit board A6 is the top board, and is labeled 018101.
 - B. Locate integrated circuit A6U5 on the component side. Turn the board over and locate A6U5 on the circuit side.
 - C. Solder one lead of the supplied 5.1 K ohm resistor to A6U5 pin 18. Connect the other end of the resistor to A6U5 pin 24. Pin 1 is designated by a small dot. The added resistor should appear as shown in Figure 2-2.
 - D. Replace the A6 board into the unit.
7. Replace the integrated circuit in location A6U5 with the RAM labeled A6U5 Option 34.
8. Replace the integrated circuit in location A6U6 with the EPROM labeled A6U6 Option 34.
9. Reconnect the Model 8164 power line, turn the unit on.
10. Perform the power supply checks for the A5 assembly board as specified in Section 7.4 of the Model 8164 Instruction Manual.
11. Place the rear panel battery switch in the "INT" position.
12. Replace the vinyl panels and covers on the Model 8164.

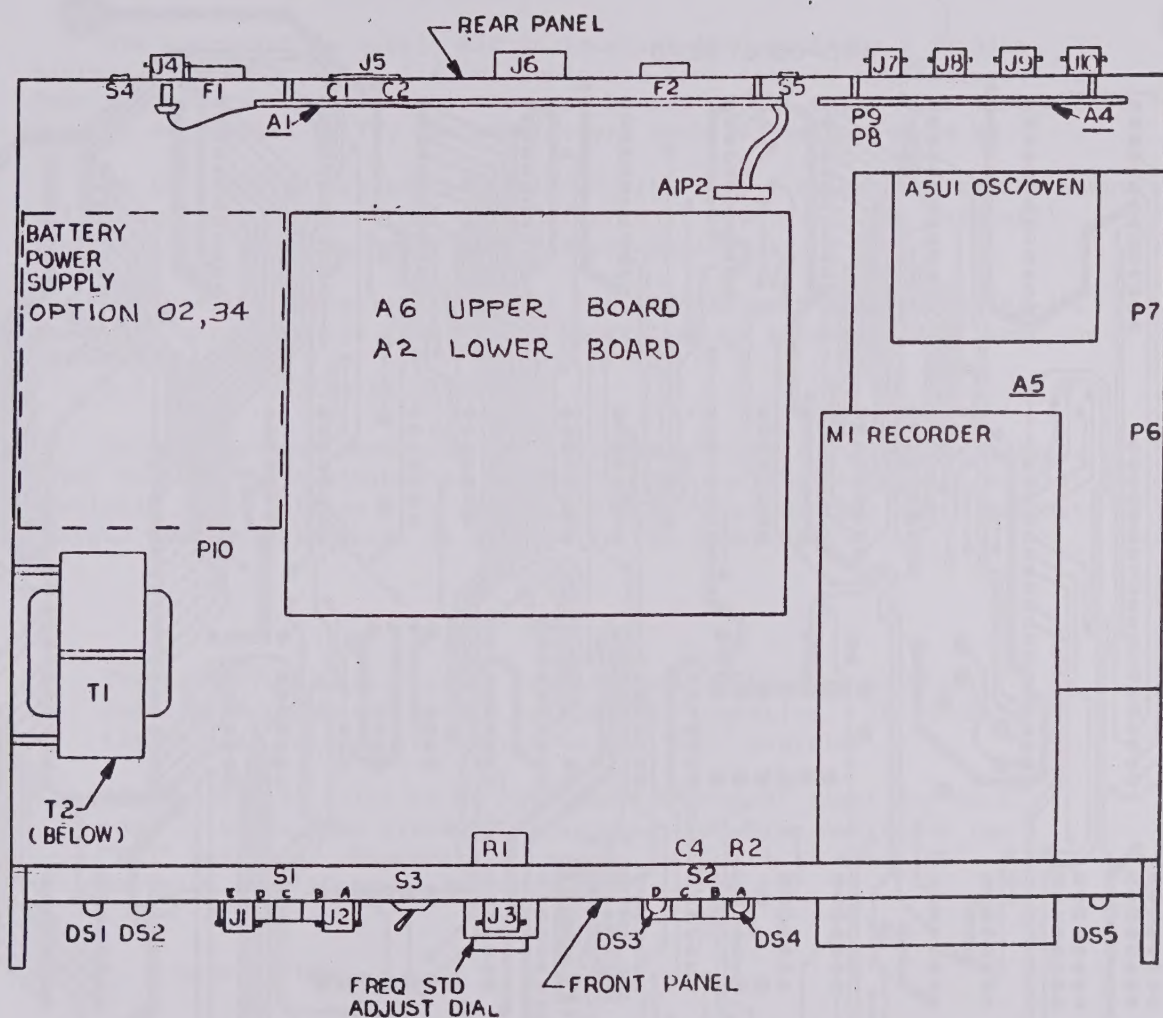


FIGURE 2-1

ASSEMBLY DRAWING - MAINFRAME

LOCATION OF 5.1K RESISTOR

ART-018101 REV D

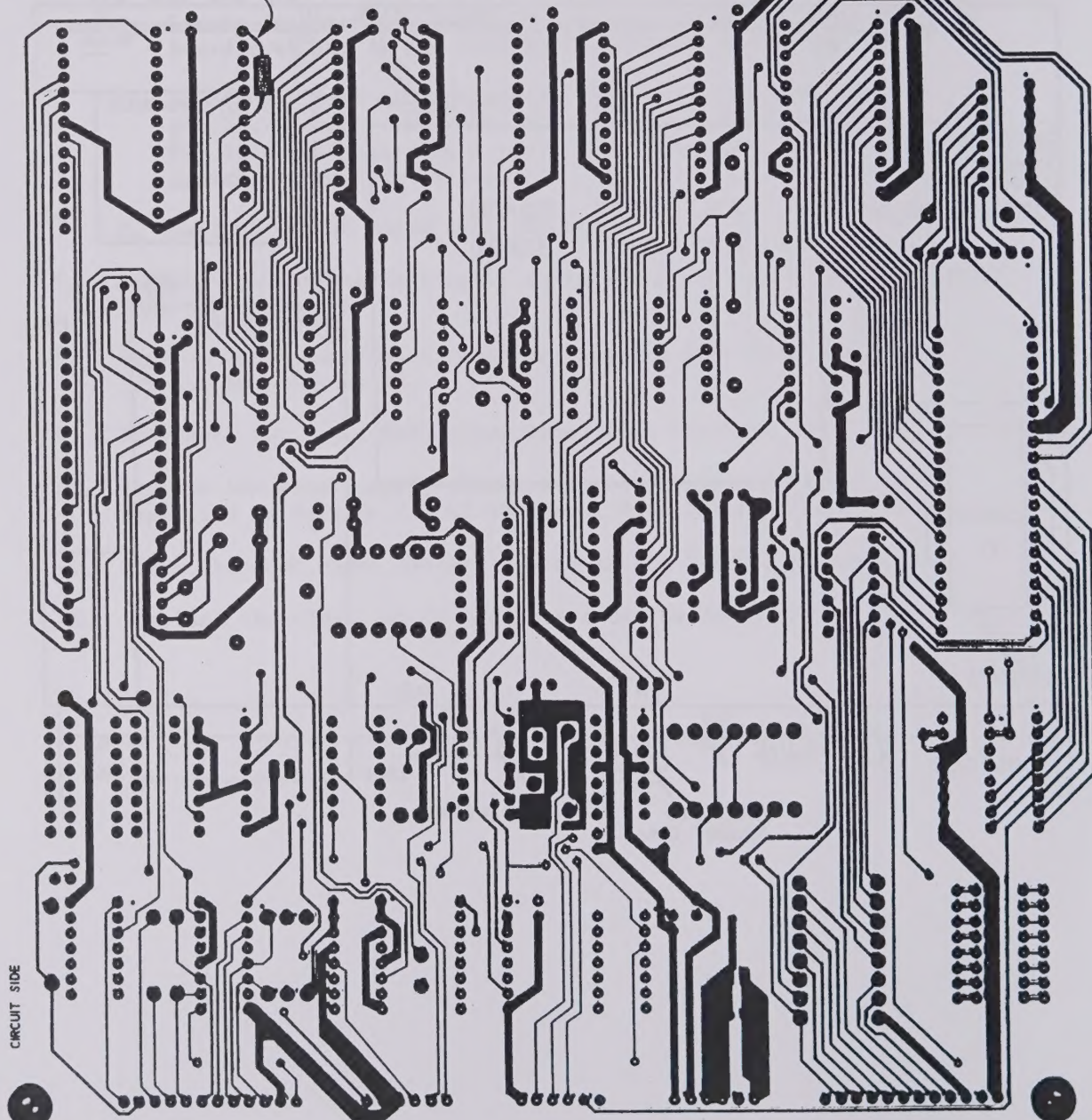


FIGURE 2-2 A6U5 RESISTOR ADD

3.0 BATTERY CONSIDERATIONS

3.1 NON-VOLATILE STATIC RAM

The non-volatile static RAM in location A6U5 contains a lithium battery with an expected life of ten years from date of manufacture. The four digit date code, YYWW, is located on top of the chip. The manufacture year is designated by YY, the manufacture week is designated by WW.

If the lithium battery is depleted, the lamp labeled FREQ STATUS ALERT will illuminate on the front panel after unit power-on. The unit will function as a standard Model 8164 without Option 34.

Replace the non-volatile static RAM, MOSTEK part number MK48Z02-25, or equivalent, when the FREQ STATUS ALERT lamp is illuminated at power-on.

3.2 OSCILLATOR BATTERY

Battery back-up power for the oscillator keeps the oven on during a power failure for a minimum of 36 hours. The oscillator outputs are not available. The battery is a rechargeable gel-type battery that is float-charged whenever the power is applied to the Model 8164.

--- NOTICE ---

The battery is disconnected for shipment by placing the rear panel battery select switch in the "EXT" position. To reconnect the battery, return the switch to the "INT" position.

If the unit is going to be disconnected from AC power for more than 36 hours then place the rear panel selector switch in the "EXT" position. Remember to return the switch to the "INT" position when AC power is reapplied.

4.0 DESCRIPTION

The control voltage for the voltage-controlled ovenized oscillator is provided by a 12-bit D/A converter on printed circuit board A6. The 12-bit D/A word is stored in non-volatile RAM (A6U5), along with a 32-bit pseudo-random bit pattern. At power-on, the 32-bit pattern is compared against a stored replica to verify that the RAM has not lost data. The D/A word is read and the control voltage to the oscillator is returned to the value prior to power failure.

If power has been maintained to the oscillator oven by the oscillator battery, then the oscillator will remain on frequency. There will be a very small frequency offset because of crystal aging, but this will be automatically corrected in one to three hours.

If at power-on, the 32-bit pseudo-random pattern read does not match the stored replica, then a default value for the D/A converter will be read from the EPROM. The lamp labeled FREQ STATUS ALERT will be illuminated.

REFERENCE DESIGNATION	PART NUMBER	DESCRIPTION
-----	-----	-----
B1-B4	B00000	Battery Sealed Lead Acid 6V
A6U5	U48Z02-25	Integrated Circuit MK48Z02-25
A6U6	U02764	Integrated Circuit, 2764 Programmed FTC 31 Option 34